

CLAIMS:

1. A method of securing a flexible wrap around a blood vessel, the wrap being generally elongate and having first and second end portions, the method including the steps of:

- 5 (1) wrapping the flexible wrap around the blood vessel;
- (2) passing the first end portion of the wrap through a buckle device affixed substantially distally from the first end portion of the wrap;
- (3) adjusting the tension in the wrap to a desired level by movement of the first end portion of the wrap relative to the buckle device;
- 10 (4) securing together adjacent parts of the wrap substantially adjacent the blood vessel; and
- (5) removing the buckle device.

2. The method as claimed in claim 1, wherein the buckle device includes means to hold the adjacent parts of the wrap together.

15 3. The method as claimed in claim 1 or 2, wherein the wrap holds a heart assist device vessel deformer in place.

4. The method as claimed in claim 3, wherein the wrap holds a heart assist device vessel deformer in place against an arterial vessel.

20 5. The method as claimed in any one of claims 1 to 4, wherein Step 4 involves securing by suturing.

6. The method as claimed in any one of claims 1 to 4, wherein Step 4 involves securing by stapling.

7. The method as claimed in any one of the preceding claims, wherein the method also includes the step of trimming off the parts of the wrap external to the sutures.

25 8. The method as claimed in any one of the preceding claims, wherein the method also includes the step of releasably attaching the buckle device to the wrap prior to Step 1.

9. The method as claimed in claim 8, wherein the buckle device is sutured to the second end portion of the wrap.

30 10. The method as claimed in claim 8, wherein the buckle device is stapled to the second end portion of the wrap.

11. The method as claimed in claim 8, wherein the buckle device includes a leg or legs that respectively pierces or pierce the wrap.

12. The method as claimed in claim 6, wherein the buckle device includes a pair of spring legs that are adapted to clamp the wrap therebetween.

13. The method as claimed in any one of the preceding claims, wherein the buckle device includes at least two parallel and spaced apart legs and the method includes
5 adjusting the tension in the wrap until the legs begin to deform towards each other.

14. The method as claimed in any one of claims 1 to 11, wherein the wrap includes aortic circumference distance markers, and the method includes adjusting the tension in the wrap until the desired aortic circumference is reached.

15. The method as claimed in any one of claims 1 to 11, wherein the buckle
10 device is adapted to lightly grip the first and second end portions of the wrap so that the wrap may be drawn tight around the vessel and then released.

16. A flexible wrap adapted to be secured around a blood vessel within a patient, the wrap being generally elongate and having first and second end portions, there being attached to the wrap a buckle device through which the second end portion of the
15 wrap may be threaded to allow the wrap to be drawn to a desired tension about the blood vessel, the buckle device being removable from the wrap after the end portions thereof have been connected together around the blood vessel.

17. The wrap as claimed in claim 16, wherein the buckle device includes means to hold overlapping parts of the wrap together.

20 18. The wrap as claimed in claim 16 or 17, wherein the buckle device is attached to the wrap substantially distally to the second end portion.

19. The wrap as claimed in claim 18, wherein the buckle device is attached to the wrap adjacent to the first end portion.

20. The wrap as claimed in any one of claims 16 to 19, wherein the end
25 portions are sutured together.

21. A heart assist device wrap for use in securing a vessel deformer to an arterial vessel, the wrap being generally elongate with two end portions and having a buckle device releasably attached thereto that includes at least a pair of substantially parallel legs with a gap therebetween through which the two end portions of the wrap can
30 pass.

22. A buckle device for use in securing a wrap around an arterial vessel, the wrap being generally elongate and having two end portions, the buckle device including at least a pair of substantially parallel legs with a gap therebetween through which the two

end portions of the wrap can pass, wherein at least one the legs is adapted for releasably fixing the wrap.

23. The device as claimed in claim 22, wherein the buckle device is adapted for suturing to the wrap.

5 24. The device as claimed in claim 22, wherein the buckle device is adapted for stapling to the wrap.

25. The device as claimed in claim 23, wherein the device includes a pair of enlarged ends adapted to clear suture knots during removal of the device from the secured wrap.

10 26. The device as claimed in claim 25, wherein the device also includes an enlarged formation in about the middle of one the legs, which is adapted to allow forcep access between the two legs.

27. The device as claimed in claim 26, wherein the other leg of the device is formed from two part legs stemming from each of the enlarged end formations, the two part legs having a small clearance between their distal ends.

15 28. The device as claimed in any one claims 23 to 27, wherein the buckle device includes a third leg that pierces the wrap.

29. The device as claimed in claim 28, wherein the three legs of the buckle device are all substantially parallel, with the first and second legs being joined at one end of the wrap and the other end of the wrap is passed between the second and third legs and adjusted to the desired wrap tension.

30. The device as claimed in claim 23 to 29, wherein small barbs are included on one of the legs, such that as the wrap end is pulled through, the material runs forward over the barb, and on pulling back, the barbs snag into the wrap to secure it in position whilst the wrap is secured.

25 31. The device as claimed in any one of claims 23 to 29, wherein the buckle device utilises spring wire and telltales to indicate the tension developed when pulling on the wrap to secure it around the blood vessel.

32. The device as claimed in claim 31, wherein the arms of the buckle are formed and sized relative to spring force such that when the wrap is tensioned the arms deflect towards one another.

33. The device as claimed in claims 23 to 32, wherein loops in one side of the parallel legs are provided to secure the buckle to the wrap.

34. The device as claimed in any one of claims 23 to 32, wherein bends or a

tubular shape in one side of the parallel legs are provided to secure the buckle device to the wrap.

35. The device as claimed in claims 23 to 34, wherein the buckle is curved to replicate the adjacent curve of a blood vessel.